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maximal velocity for O<sub>2</sub> or CO<sub>2</sub>, and the like as described herein and as may be desired by the skilled artisan.

In accordance with 37 CFR §1.121 a marked up version of the above-amended paragraph(s) illustrating the changes introduced by the forgoing amendment(s) are provided in Appendix C.

**In the Claims:**

Please amend the claims by substituting the following claims for the corresponding previously pending claims of the same numbers:

D3  
27. (amended) A method for obtaining an isolated polynucleotide comprising a sequence encoding a protein having Rubisco carboxylation activity, the method comprising:

recombining a plurality of parental polynucleotide species encoding at least one protein having Rubisco carboxylation activity under conditions suitable for sequence shuffling to form a resultant library of sequence-shuffled polynucleotides;

transferring said library into a plurality of host cells, thereby forming a library of transformants wherein sequence-shuffled Rubisco polynucleotides are expressed;

identifying at least one transformant from said library that expresses an enhanced protein having a Rubisco carboxylation activity that is enhanced to an extent that is statistically significant relative to the Rubisco carboxylation activity of proteins encoded by the plurality of parental polynucleotide species, wherein the identified transformant contains a polynucleotide comprising a sequence encoding the enhanced protein; thereby obtaining a polynucleotide comprising a sequence encoding the enhanced protein.

28. (twice amended) The method of claim 27, wherein the enhanced protein has a higher carboxylation specificity factor, to an extent that is statistically significant, than proteins encoded by the plurality of polynucleotide species.

29. (twice amended) The method of claim 27, wherein the enhanced protein has a maximal velocity of carboxylation that is greater than that of proteins encoded by the plurality of polynucleotide species, to an extent that is statistically significant.

30. (twice amended) The method of claim 27, wherein the enhanced protein has a maximal velocity of oxygenation that is less than that of proteins encoded by the plurality of polynucleotide species, to an extent that is statistically significant.